



ABSTRACT

A method and apparatus are provided that interrogate, receive, and analyze full emission spectra for at least one fluorescence excitation wavelength and for at least one reflectance measurement to determine tissue characteristics. The method includes illuminating a first portion of a target tissue with optical energy, forming a first image of the target tissue, illuminating a second portion of the target tissue with optical energy, performing spectroscopic measurements on optical energy reflected and/or emitted by the target tissue upon illumination of the second portion of the target tissue with optical energy, and determining tissue characteristics of the target tissue based on the results of the spectroscopic measurements. The apparatus and system include a base unit having illumination, detection and control sub-units, the illumination sub-unit providing illumination optical energy for illuminating a target tissue and the detection sub-unit detecting tissue characteristics of a target tissue, a separate tissue interface unit, and a pathway coupling the base unit and the tissue interface unit. The system and apparatus may also include a tissue interface unit configured to perform spectroscopic measurements on a target tissue, a docking unit configured to support the tissue interface when not in use, the docking unit including an illumination source and a processor that processes spectrographic measurements results received from the tissue interface unit, and a pathway coupling the docking unit and the tissue interface unit.